



# Maintenance Kit Manual

## AX-201

**PHILIPS**

**Assembléon**  
Integrated electronics manufacturing solutions

|                      |                               |
|----------------------|-------------------------------|
| Document .....       | Maintenance Kit Manual AX-201 |
| Based on .....       | -                             |
| Order number .....   | 4022 593 51403                |
| Supplied with: ..... | PA 2440/00                    |

**DOCUMENT HISTORY**

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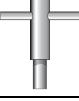
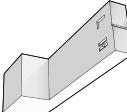
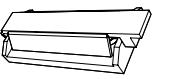
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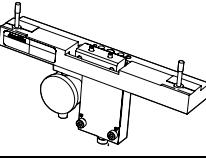
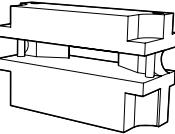
## Table of Contents

|       |  |   |
|-------|--|---|
| 1.0.1 | Maintenance kit (PA 2440/00).....                      | 5 |
| 1.0.2 | Lubricating tool for placement head DV and Z-lift..... | 8 |
| 1.1   | Material safety data sheets (MSDS).....                | 9 |



### 1.0.1 Maintenance kit (PA 2440/00)

| Description                       | Ordering code  | Amount | Used for  |   |
|-----------------------------------|----------------|--------|---|---|
| <b>Lubricating kit</b>            |                |        |   |   |
| Grease gun                        | 5322-395-10615 | 1      | -   |   |
| Flexible hose                     | 9498-396-02040 | 1      | -   |   |
| Protection cap                    | -              | 1      | -   |   |
| (Kluber) Isoflex Topas NCA52      | 5322-390-10151 | 1      | Grease for XY robot bearings                              |   |
| Lithium based grease NSK 1        | 5322-390-20159 | 1      | Transport spindles, guides                                |   |
| Anti score EP lube 3 grease       | 9498-396-00143 | 1      | Placement head HA Z-motor, guide                          |   |
| <b>Optical kit</b>                |                |        |   |   |
| Camel hair brush, optical tissues | 9498-396-00043 | 1      |   |   |
| <b>Miscellaneous</b>              |                |        |   |   |
| Dust catch filter tool            | 5322-395-10774 | 1      | Replacement tool for filters in placement head HA nozzles |    |
| Board dismantling tool            | 5322-395-10282 | 1      | Remove controller boards from control supply unit         |    |
| Filter element 0.3                | 9498-396-00062 | 2      | Pneumatic air supply                                      |  |
| Filter (fan)                      | 9498-396-01724 | 6      | Air filter controllers                                    |  |
| Calibre Z-lift                    | 9498-396-01905 | 1      | Z-lift placement heads DV, adjustment                     |  |
| Tie-wraps 15 cm                   | -              | 100    | Fixation cables heads                                     |  |
| Tie-wraps 10 cm                   | -              | 100    | Fixation cables heads                                     |  |
| Flatcable bracket (Large)         | -              | 5      | Placement head DV and Z-lift                              |  |
| Loctite 243                       | -              | 1      | All screws above Z=0 level unless otherwise defined       |  |
| Fuse puller                       | 9498-396-02119 | 1      | Pull fuses from boards                                    |  |
| PU HOSE 4                         | -              | 1 mtr  | Manifold from AQ to AX-201                                |   |

| Description                          | Ordering code  | Amount | Used for  |   |
|--------------------------------------|----------------|--------|---|---|
| Encoder tool                         | 9498-396-02059 | 1      | Adjustment of encoders on Y-axes                              |  |
| Plastic distance plate               | 9498-396-02075 | 1      | X encoder adjustment  |  |
| Linear scale mounting tool on X-axis | 9498-396-02024 | 1      | -   |  |
| Linear scale mounting tool on Y-axes | 9498-396-02026 | 1      | -   |  |
| <b>Assortment box</b>                |                |        |   |   |
| Dust catch filter                    | 5322-480-10169 | 1      | Nozzle placement head HA                                      |   |
| Carbon brushes                       | 9498-396-01388 | 16     | Motors placement head HA                                      |   |
| Fuse slow F5x20 2 A                  | 9498-396-00492 | 20     | All boards  |   |
| Fuse slow F5x20 4 A                  | 9498-396-00263 | 20     | All boards  |   |
| Screw M1.8X4                         | 5322-502-14433 | 20     | Nozzle  |   |
| Screw M2.5X 8                        | 9498-396-00250 | 10     | Sensor Z-lift   |   |
| Screw M3X5                           | 9498-396-00390 | 20     | Placement head DV on interface bracket                        |   |
| Screw M3X6                           | 9498-396-00474 | 20     | Encoder on X-axis   |   |
| Screw M3X8                           | 9498-396-00475 | 20     | Manifolds   |   |
| Screw M3X16                          | 9498-396-00476 | 20     | Encoder on Y-axes, power supply                               |   |
| Screw M4X6                           | 9498-396-01882 | 20     | Controllers placement head DV<br>Bracket pneumatic controller |   |
| Screw M4X8                           | 9498-396-01883 | 10     | Clamps, pneumatic controller,<br>fans Y-axis                  |   |
| Screw M4X10                          | 9498-396-01884 | 20     | Bracket pneumatic controller<br>Z-lift placement heads DV     |   |
| Screw M4X12                          | 5322-502-14434 | 20     | Interface placement head HA, bottom                           |   |
| Screw M4X16                          | 9498-396-01885 | 10     | X-sensor  |   |
| Screw M4X20                          | 9498-396-00584 | 20     | Interface placement head HA, top                              |   |
| Screw M4X25                          | 9498-396-01886 | 10     | BA camera   |   |
| Hex lock nut M4                      | 9499-396-00665 | 10     | Fans Y-axis   |   |
| Washer 3.2X7                         | 9498-396-00699 | 20     | All M3 screws placement head DV,<br>manifold                  |   |
| Curved spring washer M3              | 9498-396-00769 | 20     | All M3 screws   |   |
| Curved spring washer M4              | 9498-396-00903 | 20     | All M4 screws used in X-carriage                              |   |

| Description                | Ordering code  | Amount | Used for  |  |
|----------------------------|----------------|--------|---|--|
| Washer PF 3.2X7            | 9498-396-00951 | 20     | Protection boards, manifold, DV controllers                             |  |
| Washer 4.3X9               | 9498-396-00904 | 20     | All M4 screws placement head DV on bracket                              |  |
| Washer PF-CP M2,5          | 9498-396-01068 | 20     | Manifold placement head HA  |  |
| Earth washer STL ST 4.3X8  | 9498-396-01069 | 10     | Fans, brackets  |  |
| Earth washer STL ST 5.3X10 | 9498-396-01082 | 10     | Hood, side plate  |  |
| Earth washer STL ST 6.4X14 | 9498-396-01188 | 10     | Earth to covers   |  |
| O-ring placement head HA   | 5322-530-10386 | 10     | Nozzle interface  |  |
| O-ring 2.3 x 0.9           | 5322-530-51243 | 10     | Behind pressure sensor on manifold HA<br>Pneumatic controller interface |  |
| Sealing plate              | 5322-466-12073 | 10     | For nozzles placement head HA   |  |
| Fixing eye of tie-wrap     | 9498-396-01394 | 10     | Cables in control supply unit   |  |
| Hose pillar RTU-PK-3/3     | 9498-396-01881 | 6      | Manifold from AQ to AX-201  |  |
| Contact pen                | 9498-396-00125 | 5      | Trolley to lift electrical interface                                    |  |
| PCB spacer RLCBSRE-10      | 9498-396-01887 | 10     | Placement head HA, transport controller in control supply               |  |
| Cable clamp                | 9498-396-01888 | 10     | Base  |  |
| Cable clamp 4.8            | 9498-396-01889 | 10     | Encoder cable, BA camera  |  |
| Flatcable bracket (Small)  | -              | 5      | Control supply unit   |  |
| End stop Z-lift DOWN       | 9498-396-01892 | 4      | Z-lift placement head DV  |  |
| End stop Z-lift UP         | 9498-396-01893 | 8      | Z-lift Placement head DV  |  |

## 1.0.2 Lubricating tool for placement head DV and Z-lift

|                 |                   |                |  |
|-----------------|-------------------|----------------|--|
| A               | Needle (set of 6) | 9498 396 01998 |  |
| B               | Container         | 9498 396 02000 |  |
| F               | Plunger           |                |  |
| C               | Dispenser         | 9498 396 01999 |  |
| D               | Nylon ring        |                |  |
| E               | Flange screw      |                |  |
| G               | Plunger arm       |                |  |
| H               | Screw             |                |  |
| Grease (IKO)    |                   | 9498 396 02001 |  |
| Needle guidance |                   | 9498 396 01996 |  |

|               |                |  |
|---------------|----------------|--|
| Bended needle | 9498-396-02438 |  |
|---------------|----------------|--|

## 1.1 Material safety data sheets (MSDS)

For reason of environmental awareness, there is a growing demand for information on the ingredients of the maintenance materials (cleaning agents, lubricants etc.).

The relevant material safety data sheets (MSDS) are enclosed in this section.

Overview of used cleaning materials, lubricants etc.:

| Code number    | Supplier | Trade name                 | General description           | MSDS no. |
|----------------|----------|----------------------------|-------------------------------|----------|
| 1311 504 84102 | LOCTITE  | LOCTITE 243, 50ml          | SEALING AND LOCKING AGENT     | 08273    |
| 5322 390 10151 | PHILIPS  | ISOFLEX TOPAS NCA 52       | BALL AND PLAIN BEARING GREASE | 08189    |
| 9498 396 00143 | PHILIPS  | CMD ANTI-SCORING EP LUBE 3 | LITHIUM GREASE                | 01583    |
| 5322 390 20159 | PHILIPS  | NSK GREASE NO. 1 (LR3)     | GREASE                        | 10138    |
| 1322 530 68801 | PHILIPS  | ETHANOL                    | ETHANOL, DENATURATED          | 00397    |
| 1322 526 41801 | PHILIPS  | MOLYKOTE                   | METAL PROTECTOR               | 12803    |
| 1303 500 42001 | PHILIPS  | MOLYKOTE DX                | GREASE                        | 14960    |
| 1322 534 33801 | RHENUS   | RHENUS NORLITH STM 2       | BALL BEARING GREASE           | 24515    |

*Figure 1 Maintenance materials*

On the following pages the concerned MSDS sheets.

**MATERIAL SAFETY DATA SHEET**

According EC 91/155

**1. Identification of the substance/preparation**

MSDS : 01583  
Code number : 5322 390 20157  
Supplier : PHILIPS CONSUMER SERVICE  
Tradename : CMD ANTI-SCORING EP LUBE 3  
General description : LITHIUM GREASE

Emergency phonenummer +31 40 2755555

**2. Composition/information on ingredients**

| Component   | CAS-number | Percentage | EC-label |
|---|------------|------------|----------|
| 1 PETROLEUM HYDROCARBON                           | 64741-95-3 | 59.0%      |          |
| 2 PETROLEUM WAX                                   | 63231-60-7 | 14.0%      |          |
| 3 RESIN ESTER                                     | 65997-13-9 | 5.0%       |          |
| 4 POLYOXY ETHYLENE DINONYL PHENYL ETHER PHOSPHATE | 39464-64-7 | 22.0%      |          |

**3. Hazards identification**

- Product contains components that are on the black list surface water.

**4. First-aid measures**

Skin : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).  
Ingestion : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.  
Inhalation : Not applicable.  
Eyes : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.  
Remarks first aid : none

**5. Fire fighting measures**

Fire-extinguisher : carbon dioxide, foam, extinguishing powder, water spray.  
Hazardous decomposition products in fire : phosphorus oxide, phosphine, carbon monoxide, nitrous oxides.

**6. Accidental release measures**

Procedure by spillage : Dependent on quantity spilt paste, one has the choice between: - remove with cleaning rag or paper, or - cover paste with Powersorb, sand, diatomite, vermiculite and suchlike. Shovel the material into plastic bag or other suitable packaging and remove to the central depot for hazardous waste.

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## **7. Handling and storage**

Local exhausting : Under normal circumstances not applicable.

Storage conditions : Keep packing closed.  
Do not store product close to ignition or heat sources.

---

## **8. Exposure controls/personal protection**

Exposure limits (20 Cel. and 1013 mbar) :

TLV: 5 mg/m<sup>3</sup> PETROLEUM HYDROCARBON (as oil aerosol)

Remarks exposure limits :

none

Odeur threshold (20 Cel. and 1013 mbar) :

not tracable

Advised personal protection

skin : butyl rubber gloves.

eyes : safety goggles.

inhalation : none (when used normally).

---

## **9. Physical and chemical properties**

|                                 |  |
|---------------------------------|--|
| Physical state                  | : paste  |
| Colour                          | : type dependent                                   |
| Odour                           | : specific   |
| Boiling point/range (Cel.)      | : 119  |
| Melting point/range (Cel.)      | : 54   |
| Flash point/range (Cel.)        | : 229  |
| Explosive limits                | : LEL: 0.9 vol.% UEL: 7.0 vol.%                    |
| Dust explosions possible in air | : not applicable                                   |
| Density at 20 Cel.              | : 951 kg/m <sup>3</sup>                            |
| Vapour pressure in kPa          | : 0,04 (93 Cel)                                    |
| Solubility in water             | : none   |
| pH                              | : not applicable                                   |
| Viscosity                       | : > 150 mPa.s                                      |
| Autoignition temperature (Cel.) | : > 300  |
| Electrostatic chargement        | : no   |
| Log Po/w :                      | : 3,9-6 PETROLEUM HYDROCARBON<br>> 6 PETROLEUM WAX |

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## **10. Stability and reactivity**

Conditions to avoid : none

Reaction with water : no

Hazardous reactions with : strong oxidizers.

Hazardous decomposition products at heating : phosphor compounds.

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**11. Toxicological information**

## Symptoms

Skin local : With intensive skin contact risk of skin affection.  
general : No absorption worth mentioning under normal working conditions.

Ingestion local : The substance is prickling: abdominal pain, nausea.  
No symptoms under normal working conditions.  
general : No absorption worth mentioning under normal working conditions.

Inhalation local : The substance is with atomising prickling: coughing.  
general : No absorption worth mentioning under normal working conditions.

Eyes local : The substance is prickling: redness, pain.

Remarks symptoms : None

Toxicity : LD-50 unknown

**12. Ecotoxicological information**

Biochemical oxygen demand : not tracable

Chemical oxygen demand : not tracable

Ecotoxicity : LC-50: > 1000 mg/l/96h (Fish) PETROLEUM  
HYDROCARBON  
EC-50: > 1000 mg/l/48h (Daphnia) PETROLEUM  
HYDROCARBON

Remarks on ecotoxicity : none

**13. Disposal considerations**

Remainder material or uncleared empty packagings have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation. Consider also return delivery to supplier.

**14. Transport information**

Class/figure RID/ADR : none

Class IMO : none

Class ICAO : none

UN-number : none

**15. Regulatory information**

not applicable

Remarks on EC-labeling : The supplier does not give an EC-label (Userlabel).

**16. Other information**

Remarks on MSDS : none

Inner company references : none

Date last update : 1998-12-02

Date last update but one : 1997-04-07

The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.

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**MATERIAL SAFETY DATA SHEET**

According EC 91/155

**1. Identification of the substance/preparation**

MSDS : 08189  
Code number : 5322 390 10151  
Supplier : PHILIPS CONSUMER SERVICE  
Tradename : ISOFLEX TOPAS NCA 52  
General description : BALL AND PLAIN BEARING GREASE

Emergency phonenummer +31 40 2755555

**2. Composition/information on ingredients**

| Component                    | CAS-number | Percentage | EC-label |
|------------------------------|------------|------------|----------|
| 1 SYNTHETIC HYDROCARBONS OIL |            |            |          |
| 2 CALCIUM SOAP               |            |            |          |

**3. Hazards identification****4. First-aid measures**

Skin : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).  
Ingestion : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.  
Inhalation : Not applicable.  
Eyes : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.  
Remarks first aid : none

**5. Fire fighting measures**

Fire-extinguisher : carbon dioxide, extinguishing powder, foam, water spray.  
Hazardous decomposition products in fire : carbon monoxide, calcium oxide.

**6. Accidental release measures**

Procedure by spillage : Dependent on quantity spilt paste, one has the choice between: - remove with cleaning rag or paper, or - cover paste with Powersorb, sand, diatomite, vermiculite and suchlike. Shovel the material into plastic bag or other suitable packaging and remove to the central depot for hazardous waste.

**7. Handling and storage**

Local exhausting : Under normal circumstances not applicable.  
Storage conditions : Store product at room temperature.

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**8. Exposure controls/personal protection**

Exposure limits (20 Cel. and 1013 mbar) :  
not determined

Remarks exposure limits :  
none

Odeur threshold (20 Cel. and 1013 mbar) :  
not tracable

Advised personal protection  
skin : polyvinyl alcohol gloves.  
eyes : safety goggles.  
inhalation : none (when used normally).

---

**9. Physical and chemical properties**

|                                 |                               |
|---------------------------------|-------------------------------|
| Physical state                  | : paste                       |
| Colour                          | : beige                       |
| Odour                           | : specific                    |
| Boiling point/range (Cel.)      | : not tracable                |
| Melting point/range (Cel.)      | : >=180                       |
| Flash point/range (Cel.)        | : >=200                       |
| Explosive limits                | : not tracable                |
| Dust explosions possible in air | : not applicable              |
| Density at 20 Cel.              | : 850 - 890 kg/m <sup>3</sup> |
| Vapour pressure in kPa          | : not tracable                |
| Solubility in water             | : none                        |
| pH                              | : not applicable              |
| Viscosity                       | : not tracable                |
| Autoignition temperature (Cel.) | : not tracable                |
| Electrostatic chargement        | : no                          |
| Log Po/w :                      | : not tracable                |

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**10. Stability and reactivity**

|   |                     |
|---|---------------------|
| Conditions to avoid                         | : none              |
| Reaction with water                         | : no                |
| Hazardous reactions with                    | : strong oxidizers. |
| Hazardous decomposition products at heating | : none.             |

---

**11. Toxicological information****Symptoms**

|                  |   |
|------------------|---|
| Skin local       | : With intensive skin contact risk of skin affection. |
| general          | : Not applicable.                                     |
| Ingestion local  | : The substance is prickling: abdominal pain.         |
| general          | : Not applicable.                                     |
| Inhalation local | : Not applicable.                                     |

general : Not applicable.  
Eyes local : The substance is prickling: redness.  
Remarks symptoms : None  
Toxicity : LD-50 unknown

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**12. Ecotoxicological information**

Biochemical oxygen demand : not tracable  
Chemical oxygen demand : not tracable  
Ecotoxicity : none  
Remarks on ecotoxicity : none

---

**13. Disposal considerations**

Remainder material or uncleared empty packagings have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation. Consider also return delivery to supplier.

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**14. Transport information**

Class/figure RID/ADR : none  
Class IMO : none  
Class ICAO : none  
UN-number : none

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**15. Regulatory information**

not applicable

Remarks on EC-labeling : none

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**16. Other information**

Remarks on MSDS : none  
Inner company references : none  
Date last update : 1999-07-07  
Date last update but one : 1994-08-03

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The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.

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**MATERIAL SAFETY DATA SHEET**

According EC 91/155

**1. Identification of the substance/preparation**

MSDS : 08273  
Code number : 1311 504 84102  
Supplier : LOCTITE  
Tradename : LOCTITE 243, 50 ML  
General description : SEALING AND LOCKING AGENT

Emergency phonenummer +31 40 2755555

**2. Composition/information on ingredients**

| Component                               | CAS-number | Percentage     | EC-label               |
|---|------------|----------------|------------------------|
| 1 POLYETHYLENE GLYCOL<br>DIMETHACRYLATE |            | 30.0-<br>60.0% |                        |
| 2 ORGANIC PEROXIDE (CORROSIVE)          |            | 1.0-5.0%       | O,C; R: 7-<br>20/22-34 |
| 3 PLASTICIZER                           |            | 10.0-<br>30.0% |                        |

**3. Hazards identification****4. First-aid measures**

Skin : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).  
Ingestion : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.  
Inhalation : Bring the victim into the fresh air as soon as possible, let rest and if necessary call for a doctor.  
Eyes : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.  
Remarks first aid : none

**5. Fire fighting measures**

Fire-extinguisher : carbon dioxide, extinguishing powder, foam, water spray.  
Hazardous decomposition products in fire : carbon monoxide.

**6. Accidental release measures**

Procedure by spillage : Absorb the liquid in appropriate absorbent (e.g. Powersorb, dry sand, diatomite, vermiculite etc.), shovel the mixture into plastic bags and remove to the central depot for hazardous waste.

---

## 7. Handling and storage

Local exhausting : Under normal circumstances not applicable.

Storage conditions : Store product at a temperature between 8 and 21 degrees Celsius.

---

## 8. Exposure controls/personal protection

Exposure limits (20 Cel. and 1013 mbar) :  
not determined

Remarks exposure limits :

none

Odeur threshold (20 Cel. and 1013 mbar) :  
not tracable

Advised personal protection

skin : butyl rubber gloves.  
eyes : safety goggles.  
inhalation : none (when used normally).

---

## 9. Physical and chemical properties

|                                 |                          |
|---------------------------------|--------------------------|
| Physical state                  | : liquid                 |
| Colour                          | : blue                   |
| Odour                           | : specific               |
| Boiling point/range (Cel.)      | : not tracable           |
| Melting point/range (Cel.)      | : not tracable           |
| Flash point/range (Cel.)        | : >=100                  |
| Explosive limits                | : not tracable           |
| Dust explosions possible in air | : not applicable         |
| Density at 20 Cel.              | : 1080 kg/m <sup>3</sup> |
| Vapour pressure in kPa          | : <0,01 (25 Cel.)        |
| Solubility in water             | : none                   |
| pH                              | : not applicable         |
| Viscosity                       | : not tracable           |
| Autoignition temperature (Cel.) | : not tracable           |
| Electrostatic chargement        | : not tracable           |
| Log Po/w :                      | : not tracable           |

---

## 10. Stability and reactivity

|   |              |
|---|--------------|
| Conditions to avoid                         | : none       |
| Reaction with water                         | : no         |
| Hazardous reactions with                    | : peroxides. |
| Hazardous decomposition products at heating | : none.      |

---

## 11. Toxicological information

**Symptoms**

Skin local : May cause allergic reaction: chance of allergic dermatitis.  
With intensive skin contact risk of skin affection.

general : Probably no absorption worth mentioning.

Ingestion local : Produces probably no symptoms.

general : Produces probably no symptoms.

Inhalation local : Produces probably no symptoms.

general : Produces probably no symptoms.

Eyes local : The substance is prickling: redness.

Remarks symptoms : None

Toxicity : LD-50: > 5 g/kg (ORL-RAT), TOTAL PRODUCT

---

**12. Ecotoxicological information**

Biochemical oxygen demand : not tracable

Chemical oxygen demand : not tracable

Ecotoxicity : none

Remarks on ecotoxicity : none

---

**13. Disposal considerations**

Remainder material or uncleared empty packagings have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation. Consider also return delivery to supplier.

---

**14. Transport information**

Class/figure RID/ADR : none

Class IMO : none

Class ICAO : none

UN-number : none

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**15. Regulatory information**

not applicable

Remarks on EC-labeling : none

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**16. Other information**

Remarks on MSDS : none

Inner company references : BXV 11-49

Date last update : 1999-12-01

Date last update but one : 1997-08-01

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The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.

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**MATERIAL SAFETY DATA SHEET**

According EC 91/155

**1. Identification of the substance/preparation**

MSDS : 10138  
Code number : 5322 390 20159  
Supplier : PHILIPS CONSUMER SERVICE  
Tradename : NSK GREASE NO.1  
General description : GREASE

Emergency phonenummer +31 40 2755555

**2. Composition/information on ingredients**

| Component       | CAS-number | Percentage | EC-label |
|-----------------|------------|------------|----------|
| 1 SYNTHETIC OIL |            | 73.0-78.0% |          |
| 2 LITHIUM SOAP  |            | 21.0-23.0% |          |
| 3 ANTI OXIDANT  |            | 1.0-3.0%   |          |
| 4 INHIBITORS    |            | 0.5-1.5%   |          |

**3. Hazards identification****4. First-aid measures**

Skin : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).  
Ingestion : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.  
Inhalation : Not applicable.  
Eyes : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.  
Remarks first aid : none

**5. Fire fighting measures**

Fire-extinguisher : carbon dioxide, extinguishing powder, foam, water spray.  
Hazardous decomposition products in fire : carbon monoxide, nitrous oxides.

**6. Accidental release measures**

Procedure by spillage : Dependent on quantity spilt paste, one has the choice between: - remove with cleaning rag or paper, or - cover paste with Powersorb, sand, diatomite, vermiculite and suchlike. Shovel the material into plastic bag or other suitable packaging and remove to the central depot for hazardous waste.

**7. Handling and storage**

Local exhausting : Under normal circumstances not applicable.  
Storage conditions : Do not store product close to ignition sources.

---

**8. Exposure controls/personal protection**

Exposure limits (20 Cel. and 1013 mbar) :  
TLV: 5 mg/m<sup>3</sup> SYNTHETIC OIL (as oil aerosol)

Remarks exposure limits :

none

Odeur threshold (20 Cel. and 1013 mbar) :  
not tracable

Advised personal protection

skin : butyl rubber gloves.

eyes : safety goggles.

inhalation : none (when used normally).

---

**9. Physical and chemical properties**

|                                 |                             |
|---------------------------------|-----------------------------|
| Physical state                  | : paste                     |
| Colour                          | : white                     |
| Odour                           | : almost odourless          |
| Boiling point/range (Cel.)      | : not applicable            |
| Melting point/range (Cel.)      | : see info. section 16 SDS. |
| Flash point/range (Cel.)        | : 225                       |
| Explosive limits                | : not applicable            |
| Dust explosions possible in air | : not applicable            |
| Density at 20 Cel.              | : 920 kg/m <sup>3</sup>     |
| Vapour pressure in kPa          | : < 0,1                     |
| Solubility in water             | : none                      |
| pH                              | : not applicable            |
| Viscosity                       | : > 150 mPa.s               |
| Autoignition temperature (Cel.) | : > 300                     |
| Electrostatic chargement        | : no                        |
| Log Po/w :                      | : not tracable              |

---

**10. Stability and reactivity**

|   |                                       |
|---|---------------------------------------|
| Conditions to avoid                         | : none                                |
| Reaction with water                         | : no                                  |
| Hazardous reactions with                    | : oxidizing substances, strong acids. |
| Hazardous decomposition products at heating | : none.                               |

---

**11. Toxicological information**

**Symptoms**

Skin local : With intensive skin contact risk of skin affection.  
general : Not applicable.

Ingestion local : No symptoms under normal working conditions.  
general : No absorption worth mentioning under normal working conditions.

Inhalation local : Not applicable.  
general : Not applicable.

Eyes local : The substance is prickling: redness.

Remarks symptoms : None

Toxicity : LD-50 unknown

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**12. Ecotoxicological information**

Biochemical oxygen demand : not tracable  
Chemical oxygen demand : not tracable  
Ecotoxicity : none  
Remarks on ecotoxicity : none

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**13. Disposal considerations**

Remainder material or uncleared empty packagings have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation. Consider also return delivery to supplier.

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**14. Transport information**

Class/figure RID/ADR : none  
Class IMO : none  
Class ICAO : none  
UN-number : none

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**15. Regulatory information**

not applicable

Remarks on EC-labeling : The supplier does not give an EC-label (Userlabel).

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**16. Other information**

Remarks on MSDS : At temperatures above 190 degrees Celsius the product becomes soft.  
Inner company references : none  
Date last update : 1998-12-02  
Date last update but one : 1997-03-25

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The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.

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PHILIPS

## MATERIAL SAFETY DATA SHEET

According EC 91/155

## 1. Identification of the substance/preparation

MSDS : 00397  
 Product code 12nc : 1322 530 68801  
 Supplier : CHEMPROHA CHEMIEPARTNER B.V.  
 POSTBUS 872  
 3300 AW ZWIJNDRECHT  
 Netherlands  
 Tel: 078-6544944  
 Fax: 078-6191399  
 Tradename : ETHANOL 99,8%, DENATURATED WITH 5% METHANOL 1-24009  
 General description : ETHANOL, DENATURATED  
 Use : Miscellaneous  
 Publicationdate : 2003-03-05  
 Emergency phonenummer +31 (0)497-598315

## 2. Composition/information on ingredients

| Component | CAS-number | EC-number | Percentage      | EC-label                       |
|-----------|------------|-----------|-----------------|--------------------------------|
| ETHANOL   | 64-17-5    | 200-578-6 | ≥90.0 - ≤97.0 % | F;R: 11                        |
| METHANOL  | 67-56-1    | 200-659-6 | ≤3.0 - ≤10.0 %  | F,T;R: 11-23/24/25-39/23/24/25 |

## 3. Hazard identification



## R-phrases

- Highly flammable.
- Harmful by inhalation, in contact with skin and if swallowed.
- Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.

## 4. First-aid measures

**Skin** : Remove contaminated clothes as soon as possible. Remove residue substance as soon as possible (f.i. rinse with much water). In case of a serious exposure call for a doctor.

**Ingestion** : If victim is conscious let him drink 1 or 2 glasses of water. In case of general disorders bring victim into the hospital, otherwise call for a doctor.

**Inhalation** : Bring victim into the fresh air as soon as possible and let rest. In case of severe exposure call for a doctor. In case of breathing problems, loose squeezing clothes and if victim is conscious bring victim in high sitting position. In case of stagnation of breathing give IMMEDIATELY oxygen and transport to hospital as soon as possible.

**Eyes** : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.

**Remarks first aid** : none

## 5. Fire fighting measures

**Fire-extinguisher** : carbon dioxide, extinguishing powder, water spray, alcohol resistant foam  
**Hazardous decomposition products in fire** : carbon monoxide

## 6. Accidental\_release measures

**Spillage procedure** : Absorb the liquid in appropriate absorbent (e.g. Powersorb, dry sand, diatomite, vermiculite etc.), shovel the mixture into plastic bags and remove to the central depot for hazardous waste.

**Emergency procedure** : not applicable

## 7. Handling and storage

**Local exhausting** : Depends on processing circumstances, but at least good room ventilation.  
**Storage conditions** : Keep container in a well-ventilated place.  
 Keep away from sources of ignition - No smoking.  
 Keep packing closed.  
 Store product in a cool, dry and well ventilated area.

MSDS 00397 created on 2004-01-23 - page 1

## 8. Exposure controls/personal protection

### Exposure limits :

|        |   |            |
|--------|---|------------|
| TLV:   | 1000 mg/m <sup>3</sup>                          | ETHANOL    |
|        | applicable to: Netherlands (20 °C; 1013 mbar)   |            |
| TLV:   | 1907 mg/m <sup>3</sup>                          | ETHANOL    |
|        | applicable to: Belgium (20 °C; 1013 mbar)       |            |
| TLV:   | 1900 mg/m <sup>3</sup>                          | ETHANOL    |
|        | applicable to: Germany (20 °C; 1013 mbar)       |            |
| TLV:   | 1880 mg/m <sup>3</sup>                          | ETHANOL    |
|        | applicable to: United States (25 °C; 1013 mbar) |            |
| TLV:   | 266 mg/m <sup>3</sup>                           | S METHANOL |
| STEL:  | 333 mg/m <sup>3</sup>                           | S METHANOL |
|        | applicable to: Belgium (20 °C; 1013 mbar)       |            |
| TLV:   | 260 mg/m <sup>3</sup>                           | S METHANOL |
| STEL:  | 330 mg/m <sup>3</sup>                           | S METHANOL |
|        | applicable to: United States (25 °C; 1013 mbar) |            |
| TLV:   | 270 mg/m <sup>3</sup>                           | S METHANOL |
|        | applicable to: Germany (20 °C; 1013 mbar)       |            |
| * TLV: | 260 mg/m <sup>3</sup>                           | S METHANOL |
| STEL:  | 520 mg/m <sup>3</sup>                           | S METHANOL |
|        | applicable to: Netherlands (20 °C; 1013 mbar)   |            |

C=Ceiling; S=Skin

### Remarks exposure limits :

none

### Odour threshold (20°C; 1013 mbar) :

|                                |          |
|--------------------------------|----------|
| ≥96 <220.8 mg/m <sup>3</sup>   | ETHANOL  |
| ≥5.586 <7980 mg/m <sup>3</sup> | METHANOL |

### Advised personal protection :

|      |   |  |
|------|---|--|
| skin | : | butyl rubber gloves<br>neoprene gloves |
| eyes | : | safety goggles                         |

inhalation : none (when sufficient exhausting)

## 9. Physical and chemical properties

|                                 |   |                                  |
|---------------------------------|---|----------------------------------|
| Physical state                  | : | liquid                           |
| Colour                          | : | colourless                       |
| Odour                           | : | alcoholic                        |
| Vapor rate/range                | : | not traceable                    |
| Boiling point/range             | : | ≥65 °C ≤78 °C (1013 mbar)        |
| Melting point/range             | : | ≥-117 °C ≤-98 °C                 |
| Flash point/range               | : | ≥11 °C ≤12 °C                    |
| Explosive limits                | : | LEL:≥3.4 vol.% -UEL:≤36.5 vol.%  |
| Dust explosions possible in air | : | not applicable                   |
| Relative density                | : | ≥0.79000 <0.81 (water=1) (20 °C) |
| Vapour pressure                 | : | 12.7 kPa (20 °C)                 |
| Solubility in water             | : | complete                         |
| Solubility in fat               | : | not traceable                    |
| pH                              | : | ≥5 ≤9                            |
| Viscosity                       | : | 1.22 mPa.s (20 °C)               |
| Autoignition temperature        | : | ≥370 °C ≤455 °C                  |
| Decomposition temperature       | : | not traceable                    |
| Electrostatic chargement        | : | not traceable                    |

## 10. Stability and reactivity

|   |   |   |
|---|---|---|
| Conditions to avoid                         | : | none  |
| Reactions with water                        | : | no  |
| Hazardous reactions with                    | : | oxidizing substances, alkaline earth metals, alkali metals, alkali oxides |
| Hazardous decomposition products at heating | : | none  |

## 11. Toxicological information

### Symptoms

|                  |         |   |   |
|------------------|---------|---|---|
| Skin             | local   | : | The substance is prickling: redness.<br>: Degrassing: in case of sustained contact a rough, dry skin, eczema.           |
| Ingestion        | general | : | Probably no absorption worth mentioning.  |
|                  | local   | : | The substance is prickling: sore throat.  |
|                  | general | : | No symptoms under normal working conditions.  |
|                  | general | : | The substance may be absorbed after ingestion.  |
|                  |         | : | The substance is intoxicating: headache, drowsiness, dizziness. Large quantities may cause: unconsciousness, agitation. |
| Inhalation       | local   | : | The vapour is prickling: sore throat, coughing.   |
|                  | general | : | The vapour may be absorbed by inhalation.   |
| Eyes             | local   | : | For phenomena, see ingestion general.   |
| Remarks symptoms |         | : | The substance is prickling: redness, pain.  |
|                  |         | : | After prolonged exposure possibly effects on: the nervous system.   |

MSDS 00397 created on 2004-01-23 - page 2

**Toxicity :**

LD-50: 7.06 g/kg (ORL-RAT), ETHANOL  
 LD-50: >20 g/kg (SKN-RBT), ETHANOL  
 LC-50: 124.7 mg/l/4H (IHL-RAT), ETHANOL  
 LD-50: 5.628 g/kg (ORL-RAT), METHANOL  
 LC-50: 83.8 mg/l/4H (IHL-RAT), METHANOL  
 LD-50: 15.8 g/kg (SKN-RBT), METHANOL

Source : IUCLID  
 Source : ChemDat (Merck)  
 Source : IUCLID  
 Source : IUCLID  
 Source : IUCLID  
 Source : IUCLID  
 Source : IUCLID

Ames test : not traceable

**12. Ecotoxicological information**

|  |   |  |
|--|---|--|
| Biological oxygen demand (5)                     | : 0.97 g/g ETHANOL<br>0.6 g/g METHANOL                | Source : IUCLID<br>Source : IUCLID                   |
| Chemical oxygen demand                           | : 1.70 g/g ETHANOL<br>1.42 g/g METHANOL               | Source : IUCLID<br>Source : IUCLID                   |
| Biological(5)/chemical oxygen demand ratio       | : 0.57 ETHANOL<br>0.42 METHANOL                       | Source : IUCLID<br>Source : ChemDat (Merck)          |
| Degradability                                    | : easy degradable ETHANOL<br>easy degradable METHANOL | Source : ChemDat (Merck)<br>Source : ChemDat (Merck) |
| Biochemical factor                               | : 0.66 ETHANOL<br><10 METHANOL                        | Source : ChemDat (Merck)<br>Source : IUCLID          |
| Log Po/w   | : -0.32 ETHANOL<br>-0.77 METHANOL                     | Source : IUCLID<br>Source : IUCLID                   |
| Henry Constant                                   | : not traceable                                       | Source : IUCLID                                      |
| <b>Ecotoxicity :</b>                             |   |  |
| LC-50: 11000 mg/l/96H (Fish), ETHANOL            |   | Source : IUCLID                                      |
| EC-50: ≥9268 -≤14221 mg/l/48H (Daphnia), ETHANOL |   | Source : IUCLID                                      |
| LC-50: 15400 mg/l/96H (Fish), METHANOL           |   | Source : IUCLID                                      |
| EC-50: >10000 mg/l/48H (Daphnia), METHANOL       |   | Source : ChemDat (Merck)                             |

Remarks on ecotoxicity : none

**13. Disposal considerations**

Remainder material or uncleared empty packagings have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation. Consider also return delivery to supplier. Uncleared empty packagings may contain inflammable and/or explosive mixtures.

**14. Transport information**

|           |                          |                         |
|-----------|--------------------------|-------------------------|
| ADR/RID   | UN-number                | : 1170 ETHANOL SOLUTION |
|           | Class                    | : 3                     |
|           | Packinggroup             | : III                   |
|           | Transport emergency card | : 30S1170               |
| IMO       | UN-number                | : 1170 ETHANOL SOLUTION |
|           | Class                    | : 3                     |
|           | Packinggroup             | : III                   |
|           | Marine pollutant         | : no                    |
| IATA/ICAO | UN-number                | : 1170 ETHANOL SOLUTION |
|           | Class                    | : 3                     |
|           | Packinggroup             | : III                   |

**15. Regulatory information**

|                               |   |
|-------------------------------|---|
| <b>Hazard symbol</b>          |   |
| F                             | (HIGHLY FLAMMABLE)  |
| Xn                            | (HARMFUL)   |
| <b>R-phrases</b>              |   |
| 11                            | Highly flammable.   |
| 20/21/22                      | Harmful by inhalation, in contact with skin and if swallowed.   |
| 68/20/21/22                   | Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed. |
| <b>S-phrases</b>              |   |
| 9                             | Keep container in a well-ventilated place.  |
| 16                            | Keep away from sources of ignition - No smoking.  |
| 36/37                         | Wear suitable protective clothing and gloves.   |
| <b>Hazardous component(s)</b> | : METHANOL  |
| <b>Remarks on EC-labeling</b> | : The supplier may give a different EC-label (Userlabel).   |

**16. Other information**

Remarks on MSDS : none  
 Inner company references : none

**Overview relevant R-sentences from all components in section 2 :**

|             |   |
|-------------|---|
| 11          | Highly flammable.   |
| 23/24/25    | Toxic by inhalation, in contact with skin and if swallowed.   |
| 39/23/24/25 | Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. |

**Date last update** : 2004-01-19

\* Point to alterations with regard to the previous version.  
The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.

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MSDS 00397 created on 2004-01-23 - page 4

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## MATERIAL SAFETY DATA SHEET

According EC 91/155

### 1. Identification of the substance/preparation

**MSDS** : 12803  
**Product code 12nc** : 1322 526 41801  
**Supplier** : DOW CORNING  
62, RUE GENERAL DE GAULLE  
1310 TERHULPEN  
Belgium  
Tel: +32-2-655-2523  
Fax: +32-2-655-2002  
**Tradename** : MOLYKOTE METAL PROTECTOR PLUS  
**General description** : WAX SOLUTION  
**Use** : Miscellaneous  
**Publicationdate** : 2003-03-05  
**Emergency phonenumbers** +31 (0)497-598315

### 2. Composition/information on ingredients

| Component                            | CAS-number | EC-number | Percentage | EC-label    |
|--------------------------------------|------------|-----------|------------|-------------|
| STODDARD SOLVENT (C6H6 <0.1%)<br>WAX | 8052-41-3  | 232-489-3 |            | Xn;R: 10-65 |

### 3. Hazard identification

**R-phrases**  
• Flammable.

### 4. First-aid measures

**Skin** : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).  
**Ingestion** : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.  
**Inhalation** : Bring the victim into the fresh air as soon as possible, let rest and if necessary call for a doctor.  
**Eyes** : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.  
**Remarks first aid** : none

### 5. Fire fighting measures

**Fire-extinguisher** : carbon dioxide, extinguishing powder, foam, water spray  
**Hazardous decomposition products in fire** : carbon monoxide

### 6. Accidental\_release measures

**Spillage procedure** : Absorb the liquid in appropriate absorbent (e.g. Powersorb, dry sand, diatomite, vermiculite etc.), shovel the mixture into plastic bags and remove to the central depot for hazardous waste.  
**Emergency procedure** : not applicable

### 7. Handling and storage

**Local exhausting** : Depends on processing circumstances, but at least good room ventilation.  
**Storage conditions** : Store product in a well ventilated area.  
Do not store product close to ignition sources.

### 8. Exposure controls/personal protection

**Exposure limits :**  
TLV: 575 mg/m<sup>3</sup> STODDARD SOLVENT (C6H6 <0.1%)  
applicable to: Netherlands (20 °C; 1013 mbar)  
TLV: 533 mg/m<sup>3</sup> STODDARD SOLVENT (C6H6 <0.1%)  
applicable to: Belgium (20 °C; 1013 mbar)  
TLV: 570 mg/m<sup>3</sup> STODDARD SOLVENT (C6H6 <0.1%)  
applicable to: United States (25 °C; 1013 mbar)  
not determined WAX  
C=Ceiling; S=Skin  
**Remarks exposure limits :**  
none  
**Odour threshold (20°C; 1013 mbar) :**  
not traceable  
**Advised personal protection :**  
skin : butyl rubber gloves  
eyes : safety goggles  
inhalation : none (when sufficient exhausting)

### 9. Physical and chemical properties

MSDS 12803 created on 2003-03-05 - page 1

|                                 |   |   |
|---------------------------------|---|---|
| Physical state                  | : | liquid                                  |
| Colour                          | : | yellow                                  |
| Odour                           | : | like solvents                           |
| Vapor rate/range                | : | not traceable                           |
| Boiling point/range             | : | The product decomposes before it boils. |
| Melting point/range             | : | not traceable                           |
| Flash point/range               | : | 28 °C                                   |
| Explosive limits                | : | not traceable                           |
| Dust explosions possible in air | : | not applicable                          |
| Relative density                | : | 0.81000 (water=1) (20 °C)               |
| Vapour pressure                 | : | not traceable                           |
| Solubility in water             | : | none                                    |
| Solubility in fat               | : | not traceable                           |
| pH                              | : | not applicable                          |
| Viscosity                       | : | not traceable                           |
| Autoignition temperature        | : | not traceable                           |
| Decomposition temperature       | : | >150 °C                                 |
| Electrostatic chargement        | : | not traceable                           |

#### 10. Stability and reactivity

|   |   |                  |
|---|---|------------------|
| Conditions to avoid                         | : | none             |
| Reactions with water                        | : | no               |
| Hazardous reactions with                    | : | strong oxidizers |
| Hazardous decomposition products at heating | : | formaldehyde     |

#### 11. Toxicological information

|                  |               |   |
|------------------|---------------|---|
| <b>Symptoms</b>  |               |   |
| Skin             | local         | : The substance is prickling: redness.<br>: Degreasing: in case of sustained contact a rough, dry skin, eczema.   |
| Ingestion        | general local | : No absorption worth mentioning under normal working conditions.<br>: The substance is prickling: abdominal pain, vomiting, diarrhoea, coughing.<br>: Chance of pulmonary affections if choked.  |
|                  | general       | : No symptoms under normal working conditions.<br>: For phenomena, see inhalation general.  |
| Inhalation       | local general | : No absorption worth mentioning under normal working conditions.<br>: The vapour is prickling: sore throat, coughing, shortness of breath.<br>: The vapour may be absorbed by inhalation.<br>: The vapour is intoxicating: drowsiness. Large concentrations may cause: restricted awareness. |
| Eyes             | local         | : The substance is prickling: redness, pain.  |
| Remarks symptoms |               | : None  |
| <b>Toxicity</b>  |               | : LD-50: >5 g/kg (ORL-RAT), STODDARD SOLVENT (C6H6 <0.1%)   |

#### 12. Ecotoxicological information

|   |   |               |
|---|---|---------------|
| Biological oxygen demand (5)            | : | not traceable |
| Chemical oxygen demand                  | : | not traceable |
| Biological/chemical oxygen demand ratio | : | not traceable |
| Biochemical factor                      | : | not traceable |
| Log Po/w                                | : | not traceable |
| Ecotoxicity                             | : | not traceable |
| Remarks on ecotoxicity                  | : | none          |

#### 13. Disposal considerations

Remainder material or uncleaned empty packagings have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation. Consider also return delivery to supplier. Uncleaned empty packagings may contain inflammable and/or explosive mixtures.

#### 14. Transport information

|             |                          |   |   |
|-------------|--------------------------|---|---|
| * ADR/RID   | UN-number                | : | 1993 FLAMMABLE LIQUID, N.O.S. ( STODDARD SOLVENT (C6H6 <0.1%) ) |
|             | Class                    | : | 3   |
|             | Packinggroup             | : | III   |
|             | Transport emergency card | : | 30GF1-III   |
| * IMO       | UN-number                | : | 1993 FLAMMABLE LIQUID, N.O.S. ( STODDARD SOLVENT (C6H6 <0.1%) ) |
|             | Class                    | : | 3   |
|             | Packinggroup             | : | III   |
|             | Marine pollutant         | : | no  |
| * IATA/ICAO | UN-number                | : | 1993 FLAMMABLE LIQUID, N.O.S. ( STODDARD SOLVENT (C6H6 <0.1%) ) |
|             | Class                    | : | 3   |
|             | Packinggroup             | : | III   |

#### 15. Regulatory information

MSDS 12803 created on 2003-03-05 - page 2

|                               |   |
|-------------------------------|---|
| <b>Hazard symbol</b>          | none  |
| <b>R-phrases</b>              |   |
| 10                            | Flammable.  |
| <b>S-phrases</b>              |   |
| 23.2                          | Do not breath vapour.   |
| 24                            | Avoid contact with skin.  |
| 43.13                         | In case of fire, use carbon dioxide, powder extinguisher, foam or water spray.                          |
| 62                            | If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. |
| <b>Hazardous component(s)</b> | : not applicable  |
| <b>Remarks on EC-labeling</b> | : The supplier may give a different EC-label (Userlabel).   |

**16. Other information**

**Remarks on MSDS** : none  
**Inner company references** : none

**Overview relevant R-sentences from all components in section 2 :**

10 Flammable.  
65 Harmful: may cause lung damage if swallowed.

**Date last update** : 2003-03-05

\* Point to alterations with regard to the previous version.  
The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of at the date of its printing.



## MATERIAL SAFETY DATA SHEET

According EC 91/155

## 1. Identification of the substance/preparation

|                       |  |
|-----------------------|--|
| MSDS                  | : 14960  |
| Product code 12nc     | : 1303 500 42001   |
| Supplier              | : DOW CORNING<br>62, RUE GENERAL DE GAULLE<br>1310, TERHULPEN<br>Belgium<br>Tel: +32-2-655-2523<br>Fax: +32-2-655-2002 |
| Tradename             | : MOLYKOTE DX  |
| General description   | : LUBRICATING PASTE  |
| Use                   | : Various  |
| Publicationdate       | : 2001-01-05   |
| General information   | : dangerous.goods@philips.com  |
| Emergency phonenumber | : +31 (0)497-598315  |

## 2. Hazard identification

## \* R-phrases

- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 3. Composition/information on ingredients

| Component  | CAS-no     | EC-no     | Catalogue-no | Percentage(%) | EC-label   |
|--|------------|-----------|--------------|---------------|------------|
| * DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC (DMSO <3%)    | 64742-52-5 | 265-155-0 | 649-465-00-7 | 23.0          | Xn;R: 65   |
| * DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%) | 64741-96-4 | 265-097-6 | 649-457-00-3 | 17.0          | Xn;R: 65   |
| * DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC (DMSO <3%)    | 64742-54-7 | 265-157-1 | 649-467-00-8 | 6.0           | Xn;R: 65   |
| * DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%) | 64742-65-0 | 265-169-7 | 649-474-00-6 | 6.0           | Xn;R: 65   |
| * DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%) | 64741-88-4 | 265-090-8 | 649-454-00-7 | 6.0           | Xn;R: 65   |
| ZINC OXIDE   | 1314-13-2  | 215-222-5 | 030-013-00-7 | 2.0           | N;R: 50/53 |
| * N-ALKYL (C16-C18) TRIMETHYLENEDIAMINE                                | 68153-99-1 | 268-902-9 |              | 3.0           | C;R: 22 34 |

## 4. First-aid measures

|                   |  |
|-------------------|--|
| Skin              | : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).   |
| Ingestion         | : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.         |
| Inhalation        | : Not applicable.  |
| Eyes              | : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor. |
| Remarks first aid | : none   |

## 5. Fire fighting measures

|  |  |
|--|--|
| Fire-extinguisher                          | : carbon dioxide, extinguishing powder, foam, water spray  |
| Unsuitable fire-extinguisher               | : not traceable  |
| Special fire-fighting equipment            | : In the event of fire, wear protective clothing and use breathing apparatus that is independent of the ambient air. |
| * Hazardous decomposition products in fire | : carbon monoxide, nitrous oxides, zinc oxide  |

## 6. Accidental release measures

|                     |   |
|---------------------|---|
| Spillage procedure  | : Dependent on quantity spilt paste, one has the choice between: - remove with cleaning rag or paper, or - cover paste with Powersorb, sand, diatomite, vermiculite and suchlike. Shovel the material into plastic bag or other suitable packaging and remove to the central depot for hazardous waste. |
| Emergency procedure | : not applicable  |

## 7. Handling and storage

|                                    |   |
|------------------------------------|---|
| Local exhausting                   | : Under normal circumstances not applicable.    |
| Storage conditions                 | : Store product in a well ventilated area, dry. |
| Storage code (on behalf of PGS 15) | : none  |

## 8. Exposure controls/personal protection

Date of request : 2007-09-27 MSDS 14960 - Page 1

**Exposure limits :****applicable to:****The Netherlands (20 °C; 1013 mbar)**TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

HYDROTREATED HEAVY NAPHTHENIC

(DMSO &lt;3%)(as oil aerosol) (Statutory threshold limit value)

TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-REFINED HEAVY

NAPHTHENIC (DMSO &lt;3%)(as oil aerosol) (Statutory threshold limit value)

TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

HYDROTREATED HEAVY PARAFFINIC

(DMSO &lt;3%)(as oil aerosol) (Statutory threshold limit value)

TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-DEWAXED HEAVY

PARAFFINIC (DMSO &lt;3%)(as oil aerosol) (Statutory threshold limit value)

TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-REFINED HEAVY PARAFFINIC

(DMSO &lt;3%)(as oil aerosol) (Statutory threshold limit value)

TWA(8 hours): 5 mg/m<sup>3</sup>

ZINC OXIDE(as fume)

No TWA has been laid down.

N-ALKYL (C16-C18)

TRIMETHYLENEDIAMINE

**applicable to: Belgium (20 °C; 1013 mbar)**TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

HYDROTREATED HEAVY NAPHTHENIC

(DMSO &lt;3%)(as oil aerosol)

TWA(15 minutes): 10 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

HYDROTREATED HEAVY NAPHTHENIC

(DMSO &lt;3%)(as oil aerosol)

TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-REFINED HEAVY

NAPHTHENIC (DMSO &lt;3%)(as oil aerosol)

TWA(15 minutes): 10 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-REFINED HEAVY

NAPHTHENIC (DMSO &lt;3%)(as oil aerosol)

TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

HYDROTREATED HEAVY PARAFFINIC

(DMSO &lt;3%)(as oil aerosol)

TWA(15 minutes): 10 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

HYDROTREATED HEAVY PARAFFINIC

(DMSO &lt;3%)(as oil aerosol)

TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-DEWAXED HEAVY

PARAFFINIC (DMSO &lt;3%)(as oil aerosol)

TWA(15 minutes): 10 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-REFINED HEAVY PARAFFINIC

(DMSO &lt;3%)(as oil aerosol)

TWA(8 hours): 5 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-REFINED HEAVY PARAFFINIC

(DMSO &lt;3%)(as oil aerosol)

TWA(15 minutes): 10 mg/m<sup>3</sup>

ZINC OXIDE(as fume)

TWA(8 hours): 10 mg/m<sup>3</sup>

ZINC OXIDE(as fume)

ZINC OXIDE(as dust)

**applicable to: Germany (20 °C; 1013 mbar)**TWA(8 hours): 500 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

HYDROTREATED HEAVY NAPHTHENIC

(DMSO &lt;3%)(carbonhydrogen mix, group 2)

TWA(8 hours): 1000 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-REFINED HEAVY

NAPHTHENIC (DMSO &lt;3%)(carbonhydrogen mix, group 1)

TWA(8 hours): 1000 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

HYDROTREATED HEAVY PARAFFINIC

(DMSO &lt;3%)(carbonhydrogen mix, group 1)

TWA(8 hours): 1000 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-DEWAXED HEAVY

PARAFFINIC (DMSO &lt;3%)(carbonhydrogen mix, group 1)

TWA(8 hours): 1000 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

SOLVENT-REFINED HEAVY PARAFFINIC

(DMSO &lt;3%)(carbonhydrogen mix, group 1)

TWA(8 hours): 0.2 mg/m<sup>3</sup>

DISTILLATES (PETROLEUM),

Date of request : 2007-09-27

MSDS 14960 - Page 2

|                  |                       |   |
|------------------|-----------------------|---|
| TWA(8 hours):    | 0.2 mg/m <sup>3</sup> | HYDROTREATED HEAVY NAPHTHENIC (DMSO <3%)(as mineral oil, inhalable dust)<br>DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%)(as mineral oil, inhalable dust)                          |
| TWA(8 hours):    | 0.2 mg/m <sup>3</sup> | DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC (DMSO <3%)(as mineral oil, inhalable dust)<br>DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%)(as mineral oil, inhalable dust) |
| TWA(8 hours):    | 0.2 mg/m <sup>3</sup> | DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%)(as mineral oil, inhalable dust)  |
| TWA(8 hours):    | 2 mg/m <sup>3</sup>   | ZINC OXIDE(as respirable fume)  |
| TWA(15 minutes): | 10 mg/m <sup>3</sup>  | ZINC OXIDE(as respirable fume)  |

C=Ceiling; S=Skin

**Remarks exposure limits :**

none

**Odour threshold (20°C; 1013 mbar) :**

not traceable

**DNEL (Derived No Effect Level)**

not traceable

**PNEC (Predicted No Effect Concentration)**

not traceable

**Advised personal protection :**

|            |   |                                   |
|------------|---|-----------------------------------|
| Hands      | : | polyvinyl alcohol gloves          |
| Eyes       | : | safety goggles                    |
| Inhalation | : | none (when sufficient exhausting) |
| Skin       | : | none (when used normally)         |

**9. Physical and chemical properties**

|  |   |                           |
|--|---|---------------------------|
| <b>Physical state</b>                  | : | paste                     |
| <b>Colour</b>                          | : | white                     |
| <b>Odour</b>                           | : | almost odourless          |
| <b>Vapor rate/range</b>                | : | not traceable             |
| <b>Boiling point/range</b>             | : | not traceable             |
| <b>Melting point/range</b>             | : | not traceable             |
| <b>Flash point/range</b>               | : | ≥100 °C                   |
| <b>Explosive limits</b>                | : | not traceable             |
| <b>Dust explosions possible in air</b> | : | not applicable            |
| <b>Relative density</b>                | : | 1.14000 (water=1) (20 °C) |
| <b>Vapour pressure</b>                 | : | not traceable             |
| <b>Solubility in water</b>             | : | none                      |
| <b>Solubility in fat</b>               | : | not traceable             |
| <b>pH</b>                              | : | not applicable            |
| <b>Viscosity</b>                       | : | not traceable             |
| <b>Autoignition temperature</b>        | : | not traceable             |
| <b>Decomposition temperature</b>       | : | >150 °C                   |
| <b>* Electrostatic chargement</b>      | : | no                        |

**10. Stability and reactivity**

|  |   |                      |
|--|---|----------------------|
| <b>Conditions to avoid</b>                         | : | none                 |
| <b>Reactions with water</b>                        | : | no                   |
| <b>Hazardous reactions with</b>                    | : | oxidizing substances |
| <b>Hazardous decomposition products at heating</b> | : | formaldehyde         |

**11. Toxicological information**

|                  |         |   |
|------------------|---------|---|
| <b>Symptoms</b>  |         |   |
| Skin             | local   | : With intensive skin contact risk of skin affection.             |
|                  | general | : No absorption worth mentioning under normal working conditions. |
| Ingestion        | local   | : No symptoms under normal working conditions.                    |
|                  | general | : The substance may be absorbed after ingestion.                  |
| Inhalation       | local   | : No absorption worth mentioning under normal working conditions. |
|                  | general | : The vapour and the fumes are prickling: coughing.               |
| Eyes             | local   | : No absorption worth mentioning under normal working conditions. |
| Remarks symptoms |         | : The substance is prickling: redness.                            |
|                  |         | : None  |

**Toxicity :**

LD-50: >2 g/kg (ORL-RAT), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC **Source** : CONCAWE (DMSO <3%)  
 LD-50: >2 g/kg (SKN-RBT), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC **Source** : CONCAWE (DMSO <3%)

Date of request : 2007-09-27

MSDS 14960 - Page 3

|  |        |                   |
|--|--------|-------------------|
| LD-50: >2 g/kg (ORL-RAT), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%)   | Source | : CONCAWE         |
| LD-50: >2 g/kg (SKN-RBT), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%)   | Source | : CONCAWE         |
| LD-50: >2 g/kg (ORL-RAT), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC (DMSO <3%)      | Source | : CONCAWE         |
| LD-50: >2 g/kg (SKN-RBT), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC (DMSO <3%)      | Source | : CONCAWE         |
| LD-50: >2 g/kg (ORL-RAT), DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%)   | Source | : CONCAWE         |
| LD-50: >2 g/kg (SKN-RBT), DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%)   | Source | : CONCAWE         |
| LD-50: >2.0 g/kg (ORL-RAT), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%) | Source | : CONCAWE         |
| LD-50: >2.0 g/kg (SKN-RBT), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%) | Source | : CONCAWE         |
| LD-50: >5 g/kg (ORL-RAT), ZINC OXIDE   | Source | : ChemDat (Merck) |

**Ames test :** not traceable

## 12. Ecotoxicological information

|   |        |  |  |
|---|--------|--|--|
| Biological oxygen demand (5)  | :      | not traceable  |  |
| Chemical oxygen demand  | :      | not traceable  |  |
| Biological/chemical oxygen demand ratio   | :      | not traceable  |  |
| Degradability   | :      | degradable DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%)<br>degradable DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%)<br>degradable DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%)  | Source : CONCAWE<br>Source : CONCAWE<br>Source : CONCAWE                                       |
| Biochemical factor  | :      | not traceable  |  |
| Log Po/w  | :      | ≥3.9 - ≤6 DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC (DMSO <3%)<br>≥3.9 - ≤6 DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%)<br>≥3.9 - ≤6 DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC (DMSO <3%)<br>≥3.9 - ≤6 DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%)<br>≥3.9 - ≤6 DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%) | Source : CONCAWE<br>Source : CONCAWE<br>Source : CONCAWE<br>Source : CONCAWE<br>Source : IUCID |
| Henry Constant  | :      | not traceable  |  |
| <b>Ecotoxicity :</b>  |        |  |  |
| LC-50: >1000 mg/l/96H (Fish), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC (DMSO <3%)       | Source | : CONCAWE  |  |
| EC-50: >1000 mg/l/48H (Daphnia), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC (DMSO <3%)    | Source | : CONCAWE  |  |
| IC-50: >1000 mg/l/72H (Algae), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY NAPHTHENIC (DMSO <3%)      | Source | : CONCAWE  |  |
| LC-50: >5000 mg/l/96H (Fish), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%)    | Method | : OECD 203   |  |
|   | Source | : IUCID  |  |
| EC-50: >1000 mg/l/48H (Daphnia), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%) | Source | : CONCAWE  |  |
| IC-50: >1000 mg/l/72H (Algae), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY NAPHTHENIC (DMSO <3%)   | Source | : CONCAWE  |  |
| LC-50: >5000 mg/l/96H (Fish), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC (DMSO <3%)       | Method | : OECD 203   |  |
|   | Source | : IUCID  |  |
| EC-50: >1000 mg/l/48H (Daphnia), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC (DMSO <3%)    | Source | : CONCAWE  |  |
| IC-50: >1000 mg/l/72H (Algae), DISTILLATES (PETROLEUM), HYDROTREATED HEAVY PARAFFINIC (DMSO <3%)      | Source | : CONCAWE  |  |
| LC-50: >1000 mg/l/96H (Fish), DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%)    | Method | : OECD 203   |  |
|   | Source | : IUCID  |  |
| EC-50: >1000 mg/l/48H (Daphnia), DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%) | Source | : CONCAWE  |  |
| IC-50: >1000 mg/l/72H (Algae), DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC (DMSO <3%)   | Source | : CONCAWE  |  |
| LC-50: >1000 mg/l/96H (Fish), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%)    | Method | : OECD 203   |  |
|   | Source | : IUCID  |  |
| EC-50: >1000 mg/l/48H (Daphnia), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%) | Source | : CONCAWE  |  |
| IC-50: >1000 mg/l/72H (Algae), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%)   | Source | : CONCAWE  |  |
| LC-50: >1000 mg/l/96H (Fish), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%)    | Method | : OECD 203   |  |
|   | Source | : IUCID  |  |
| EC-50: >1000 mg/l/48H (Daphnia), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%) | Source | : CONCAWE  |  |
| IC-50: >1000 mg/l/72H (Algae), DISTILLATES (PETROLEUM), SOLVENT-REFINED HEAVY PARAFFINIC (DMSO <3%)   | Source | : CONCAWE  |  |
| LC-50: 2246 mg/l/96H (Fish), ZINC OXIDE   | Source | : Easi View  |  |

**Remarks on ecotoxicity** : none

**13. Disposal considerations**

Remainder material or uncleared empty packagings have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation.

**14. Transport information**

Not subject to Transport-regulation Dangerous Substances

**15. Regulatory information****Hazard symbol**

none

**\* R-phrases**

52/53

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**\* S-phrases**

61

Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Hazardous component(s)**

: not applicable

**Remarks on EC-labeling**

: The supplier may give a different EC-label (Userlabel).

**16. Other information**

**Remarks on MSDS** : The component(s), as mentioned in section 3, are registered in the Toxic Substances Control Act Inventory (USA).

**Overview relevant R-sentences from all components in section 3 :**

22

Harmful if swallowed.

34

Causes burns.

50/53

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

65

Harmful: may cause lung damage if swallowed.

**Date last update**

: 2004-12-23

\* Point to alterations with regard to the previous version.  
The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.

## WORKPLACE INSTRUCTION CARD (14960)

Date last update:2004-12-23

Date of request:2007-09-27

## IDENTIFICATION

**Product code 12nc** : 1303 500 42001  
**Supplier** : DOW CORNING  
**Tradename** : MOLYKOTE DX  
**General description** : LUBRICATING PASTE  
**Appearance** : paste - white - almost odourless

## USAGELABEL (The supplier may give a different EC-label (Userlabel).)

\* **R-phrases** : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
 \* **S-phrases** : Avoid release to the environment. Refer to special instructions/Safety data sheets.  
**Hazardous components** : not applicable

## FIRST AID

**Skin** : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).  
**Ingestion** : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.  
**Inhalation** : Not applicable.  
**Eyes** : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.

## PRECAUTIONARY MEASURES



polyvinyl alcohol gloves



safety goggles

**Skin** : none (when used normally)  
**Local exhausting** : Under normal circumstances not applicable.  
**Spillage procedure** : Dependent on quantity spilt paste, one has the choice between: - remove with cleaning rag or paper, or - cover paste with Powersorb, sand, diatomite, vermiculite and suchlike. Shovel the material into plastic bag or other suitable packaging and remove to the central depot for hazardous waste.  
**Emergency procedure** : not applicable  
**Fire-extinguisher** : carbon dioxide, extinguishing powder, foam, water spray  
**Unsuitable fire-extinguisher** : not traceable  
**Reaction with water** : no

\* Point to alterations with regard to the previous version.

The information provided in this Instructioncard is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.



## MATERIAL SAFETY DATA SHEET

According EC 1907/2006 (REACH)

## 1. Identification of the substance/preparation

MSDS : 24515  
 Product code 12nc : 1322 534 33801  
 Supplier : RHENUS LUB GMBH & CO KG

Erkelenzer Str. 36  
 D-41179 Mönchengladbach  
 Germany  
 TEL:+ 49(0)2161-5869-0  
 FAX:+ 49(0)2161-5869-93

Tradename : RHENUS NORLITH STM 2  
 General description : BALL BEARING GREASE  
 Use : Various  
 Publicationdate : 2008-01-15  
 General information : dangerous.goods@philips.com  
 Emergency phonenumbr : +31 (0)497-598315

## 2. Hazard identification

## 3. Composition/information on ingredients

| Component                           | CAS-no    | EC-no     | Catalogue-no | Percentage(%) | EC-label   |
|-------------------------------------|-----------|-----------|--------------|---------------|------------|
| MINERAL OIL                         |           |           |              |               |            |
| LITHIUM SOAP                        |           |           |              |               |            |
| ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2- | 4259-15-8 | 224-235-5 |              | <2.5          | N;R: 51/53 |

## 4. First-aid measures

Skin : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).  
 Ingestion : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.  
 Inhalation : Not applicable.  
 Eyes : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.  
 Remarks first aid : none

## 5. Fire fighting measures

Fire-extinguisher : carbon dioxide, extinguishing powder, foam, water spray  
 Unsuitable fire-extinguisher : not traceable  
 Special fire-fighting equipment : In the event of fire, wear protective clothing and use breathing apparatus that is independent of the ambient air.  
 Hazardous decomposition products in fire : carbon monoxide, zinc oxide, sulphur oxides, phosphorus oxide, lithium oxide

## 6. Accidental release measures

Spillage procedure : Dependent on quantity spilt paste, one has the choice between: - remove with cleaning rag or paper, or - cover paste with Powersorb, sand, diatomite, vermiculite and suchlike. Shovel the material into plastic bag or other suitable packaging and remove to the central depot for hazardous waste.  
 Emergency procedure : not applicable

## 7. Handling and storage

Local exhausting : Under normal circumstances not applicable.  
 Storage conditions : Store product protected from the sun, frost free.  
 Storage code (on behalf of PGS 15) : none

## 8. Exposure controls/personal protection

Exposure limits :  
 applicable to: The Netherlands (20 °C; 1013 mbar)  
 TWA(8 hours): 5 mg/m<sup>3</sup> MINERAL OIL(as oil aerosol) (Statutory threshold limit value)  
 No TWA has been laid down.  
 No TWA has been laid down.  
 applicable to: Belgium (20 °C; 1013 mbar)  
 TWA(8 hours): 5 mg/m<sup>3</sup> MINERAL OIL(as oil aerosol)

Date of request : 2008-08-18

MSDS 24515 - Page 1

A2-00002.fm

|                  |                            |  |
|------------------|----------------------------|--|
| TWA(15 minutes): | 10 mg/m <sup>3</sup>       | MINERAL OIL(as oil aerosol)              |
| applicable to:   | Germany (20 °C; 1013 mbar) |  |
| TWA(8 hours):    | 200 mg/m <sup>3</sup>      | MINERAL OIL(carbonhydrogen mix, group 4) |

|                |   |
|----------------|---|
| applicable to: | United States of America (25 °C; 1013 mbar) |
| TWA(8 hours):  | 0.2 mg/m <sup>3</sup>                       |

|   |
|---|
| MINERAL OIL(as mineral oil, inhalable dust) |
|---|

C=Ceiling; S=Skin

**Remarks exposure limits :**

none

**Odour threshold (20°C; 1013 mbar) :**

not traceable

**DNEL (Derived No Effect Level)**

not traceable

**PNEC (Predicted No Effect Concentration)**

not traceable

**Advised personal protection :**

|            |   |                                   |
|------------|---|-----------------------------------|
| Hands      | : | polyvinyl alcohol gloves          |
| Eyes       | : | safety goggles                    |
| Inhalation | : | none (when sufficient exhausting) |
| Skin       | : | none (when used normally)         |

**9. Physical and chemical properties**

|  |   |                                 |
|--|---|---------------------------------|
| <b>Physical state</b>                  | : | paste                           |
| <b>Colour</b>                          | : | brown                           |
| <b>Odour</b>                           | : | specific                        |
| <b>Vapor rate/range</b>                | : | not traceable                   |
| <b>Boiling point/range</b>             | : | not traceable                   |
| <b>Melting point/range</b>             | : | >180 °C                         |
| <b>Flash point/range</b>               | : | >200 °C                         |
| <b>Explosive limits</b>                | : | not traceable                   |
| <b>Dust explosions possible in air</b> | : | not applicable                  |
| <b>Relative density</b>                | : | ≥0.88 - ≤0.92 (water=1) (20 °C) |
| <b>Vapour pressure</b>                 | : | not traceable                   |
| <b>Solubility in water</b>             | : | none                            |
| <b>Solubility in fat</b>               | : | not traceable                   |
| <b>pH</b>                              | : | not applicable                  |
| <b>Viscosity</b>                       | : | not traceable                   |
| <b>Autoignition temperature</b>        | : | not traceable                   |
| <b>Decomposition temperature</b>       | : | not traceable                   |
| <b>Electrostatic charge</b>            | : | no                              |

**10. Stability and reactivity**

|  |   |                      |
|--|---|----------------------|
| <b>Conditions to avoid</b>                         | : | none                 |
| <b>Reactions with water</b>                        | : | no                   |
| <b>Hazardous reactions with</b>                    | : | oxidizing substances |
| <b>Hazardous decomposition products at heating</b> | : | none                 |

**11. Toxicological information**

|                  |         |   |
|------------------|---------|---|
| <b>Symptoms</b>  |         |   |
| Skin             | local   | The substance is prickling: redness.                    |
|                  | general | Probably no absorption worth mentioning.                |
| Ingestion        | local   | The substance is prickling: sore throat.                |
|                  | general | Probably no absorption worth mentioning.                |
| Inhalation       | local   | The substance is with atomising prickling: sore throat. |
|                  | general | Probably no absorption worth mentioning.                |
| Eyes             | local   | The substance is prickling: redness.                    |
| Remarks symptoms |         | None  |

**Toxicity :**

LD-50: 3.1 g/kg (ORL-RAT), ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-

**Method** : OECD 401

LD-50: &gt;5.0 g/kg (SKN-RBT), ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-

**Source** : IUCLID

Ames test : negative ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-

**Method** : OECD 402

LD-50: &gt;5.0 g/kg (SKN-RBT), ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-

**Source** : IUCLID

Ames test : negative ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-

**Source** : Supplier**12. Ecotoxicological information**

|  |   |               |
|--|---|---------------|
| <b>Biological oxygen demand (5)</b>            | : | not traceable |
| <b>Chemical oxygen demand</b>                  | : | not traceable |
| <b>Biological/chemical oxygen demand ratio</b> | : | not traceable |

Date of request : 2008-08-18

MSDS 24515 - Page 2

|                           |   |   |               |   |           |
|---------------------------|---|---|---------------|---|-----------|
| <b>Degradability</b>      | : | degradable ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-        | <b>Source</b> | : | Supplier  |
| <b>Biochemical factor</b> | : | not traceable   |               |   |           |
| <b>Log Po/w</b>           | : | 2.86 ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-              | <b>Source</b> | : | IUCLID    |
| <b>Henry Constant</b>     | : | 0.0111 atm m3/mol ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2- | <b>Source</b> | : | Easi View |

**Ecotoxicity :**

|  |               |   |          |
|--|---------------|---|----------|
| LC-50: >1 - <5 mg/l/96H (Fish), ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-      | <b>Method</b> | : | OECD 203 |
| EC-50: >1 - <1.5 mg/l/48H (Daphnia), ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2- | <b>Source</b> | : | IUCLID   |
| EC-50: >1 - <1.5 mg/l/48H (Daphnia), ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2- | <b>Method</b> | : | OECD 202 |
| IC-50: >1 - <5 mg/l/96H (Algae), ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-     | <b>Source</b> | : | IUCLID   |
| IC-50: >1 - <5 mg/l/96H (Algae), ETHYLHEXYL ZINC DITHIOPHOSPHATE, 2-     | <b>Method</b> | : | OECD 201 |
|  | <b>Source</b> | : | IUCLID   |

**Remarks on ecotoxicity** : none**13. Disposal considerations**

Remainder material or uncleared empty packagings have to be incinerated in a proper installation or dumped on an approved landfill, in accordance with local and national legislation.

**14. Transport information**

Not subject to Transport-regulation Dangerous Substances

**15. Regulatory information**

|                               |   |                |
|-------------------------------|---|----------------|
| <b>EC-Label</b>               | : | not applicable |
| <b>Remarks on EC-labeling</b> | : | none           |

**16. Other information****Remarks on MSDS** : none**Overview relevant R-sentences from all components in section 3 :**

51/53 Toxic to the aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Date last update** : 2008-01-15

\* Point to alterations with regard to the previous version.  
The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.

## WORKPLACE INSTRUCTION CARD (24515)

Date last update:2008-01-15

Date of request:2008-08-18

## IDENTIFICATION

**Product code 12nc** : 1322 534 33801  
**Supplier** : RHENUS LUB GMBH & CO KG  
**Tradename** : RHENUS NORLITH STM 2  
**General description** : BALL BEARING GREASE  
**Appearance** : paste - brown - specific

## USAGELABEL

not applicable

## FIRST AID

**Skin** : Remove residue substance as soon as possible from the skin (f.i. rinse with much water).  
**Ingestion** : Let drink 1 or 2 glasses of water. In case of general disorders call for a doctor.  
**Inhalation** : Not applicable.  
**Eyes** : Rinse for a long time with much water. In case of eye-sight disturbances consult a doctor.

## PRECAUTIONARY MEASURES



polyvinyl alcohol gloves



safety goggles

**Skin** : none (when used normally)  
**Local exhausting** : Under normal circumstances not applicable.  
**Spillage procedure** : Dependent on quantity spilt paste, one has the choice between: - remove with cleaning rag or paper, or - cover paste with Powersorb, sand, diatomite, vermiculite and suchlike. Shovel the material into plastic bag or other suitable packaging and remove to the central depot for hazardous waste.  
**Emergency procedure** : not applicable  
**Fire-extinguisher** : carbon dioxide, extinguishing powder, foam, water spray  
**Unsuitable fire-extinguisher** : not traceable  
**Reaction with water** : no

\* Point to alterations with regard to the previous version.

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